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Abstract

Two of the central challenges of e-government are the need for 'joined-up' government through agency collaboration, and the need to provide 'citizen-centred' government, where services and information are integrated at the point of delivery. Electronic service delivery provides the hoped for panacea to enable not only administrative efficiencies in the functions of government, but also services that are centred on the needs of the citizen. The implementation of e-government however, presents challenges regarding the achievement of inter-agency collaboration and highlights the importance of developing multiple access channels. This paper reports from an in-depth case study detailing first, the strategy the Irish government adopted for electronic service delivery and second, provides detailed analysis from the pioneering efforts of an individual county council into agency collaboration and a unique method of service provision. Two survey questionnaires conducted with staff of the county council and citizens of the county, reveal critical success factors in developing inter-agency collaboration and raise important concerns expressed by citizens into data privacy, social inclusion and the digital divide.

1   Introduction

The impact of the Internet marked a watershed in information technology usage in government and the potential to deliver user-centred, cost-effective services has been well-documented (Watson and Mundy, 2001, Al-Kibisi et al., 2001, Ho, 2002). One main goal of citizen-centred e-government is to develop citizen-centred service delivery and to achieve this significant cross-functional service integration and data availability is required (Chen and Gant, 2001, Fernandes et al., 2001, Gant and Gant, 2001). However, many of the models for e-government implementation have produced only descriptive frameworks for service delivery over the Internet (Layne and Lee, 2001) and have failed to address the wider challenges of developing cross-agency linkages and implementing multiple access channels to e-government services. Although the benefits of online access to services are recognised, there is a need to carry out research into the development of physical access to services in light of issues such as social inclusion, the digital divide and the need to promote cross-agency co-operation in the development of service integration.

This paper reports on an in-depth case study on the development of a physical one stop shop service for citizens in Ireland. The case study includes the viewpoints of critical stakeholders including top-level and local management and provides detailed analysis of two surveys including staff members of the facility and the general public. The success of the implementation of the one stop shop yields valuable insights into the development of cross-agency co-operation. This paper also provides a citizen-based perspective on modes of service access. Specifically, users of this service highlight physical interaction with service providers as being preferable over online access, in particular where issues of data privacy, social inclusion and the digital divide arise.

2   Central Themes In eGovernment

Two of the central themes guiding the development of e-government are the need for 'joined-up' government through horizontal and vertical integrations, which connect different service departments and cut across traditional organisational boundaries; and the need to provide "citizen-centred" government where services and information are integrated at the point of delivery (Chan et al., 2003, Al-Kibisi et al., 2001, Ho, 2002). The dual challenge of implementing inter-agency cooperation and citizen-centred service delivery confronts the limitations of the traditional organisational structure of government and represent the main objectives in e-government implementation (Watson and Mundy, 2001).

2.1   Electronic Service Delivery

The key requirement in providing citizen-centred e-government is in the use of technology to produce and deliver integrated services electronically (Ho, 2002, Layne and Lee, 2001, Bannister and Walsh, 2002). The motivation for this is firstly to deliver public services centred on the needs of citizens and secondly to achieve administrative efficiencies in the functions of government (De Araújo, 2000, Hood, 1991, Minogue et al., 1998). Electronic service delivery (ESD) initially occurred in the private sector and was characterised by a focus on the specific needs of the company (Clarke, 1999, Clarke, 1996). The important development in ESD however, was in refocusing the presentation of the service to suit the manifold and changing needs of the customer, not the organisation (Lenk, 2002, Ho, 2002). This 'client-based' view has been adopted in e-government initiatives, reinforcing the shift in government from the traditional, functional structure of administration to a more responsive model that provides services in a citizen-centred manner (Lenk, 2002, Osborne and Gaebler, 1992, Bellamy and Taylor, 1998, Heeks, 1999).

The concept of Entry Points or Portals provides the vehicle in ESD for delivering integrated, customer-centred services (Clark, 1999). The generic architecture of an entry point is outlined in figure 1 below. The main component is the integrative technology, the 'entry point'; this middleware element coordinates data flow between the legacy systems of service providers and multiple delivery channels. A variety of delivery mechanisms provide a choice of interface between the user and the entry point, depending on the requirements of the service and preference of the user (Poon, 2002, Lenk, 2002). One of the advantages of this model is that communication is managed between government agencies in the provision of integrated services; this in turn simplifies the implementation of entry points as major organisational change is avoided (Ho, 2002).
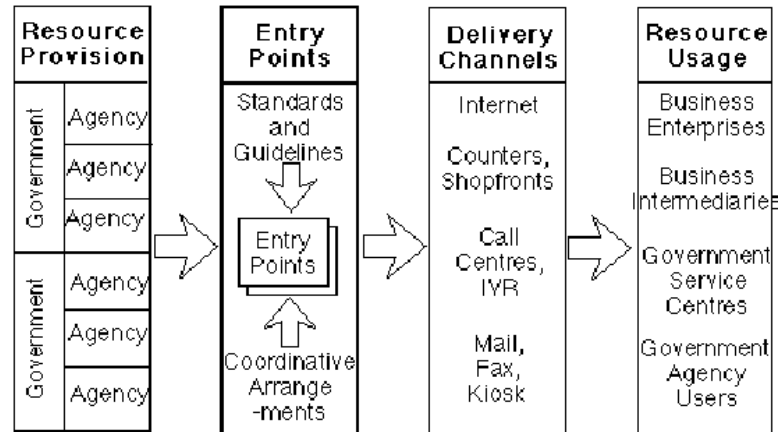
Figure 1: *Generic Architecture Of An Entry Point. Source (Clarke, 1999).*

The ability of the entry point to provide integrated services to citizens enables the provision of citizen-centred e-government, as common services can be customised for individual citizens (Al-Kibisi et al., 2001, Chen and Gant, 2001, Gant and Gant, 2001). Service integration will mean that a single citizen interaction, from whichever delivery channel, will automatically notify all government systems required to perform the requested task (Watson and Mundy, 2001). Tambouris (2001) states that the ultimate goal is to provide a 'one stop shop' service to the citizen through which any level of government transaction can be completed.

3   Critical Issues In Developing ESD

Given the potential for customised, integrated service delivery, entry points are now emerging as a key priority for government agencies as they develop e-government initiatives and create electronic relationships with citizens and business (Gant and Gant, 2001). However the implementation of this technology raises issues regarding inter-agency collaboration and the importance of multiple access channels.

3.1   Inter-Agency Collaboration

The cooperation of government agencies is crucial to the development of an inter-networked government that provides a vehicle for transforming the functions of government and for gaining efficiencies and improvements in co-ordination (Tapscott, 1996, Devadoss et al., 2003, Ho, 2002). Ensuring effective collaboration is essential to support the technical process of developing integrated service delivery; it provides governments with the potential to develop integrated applications, share resources, adapt to new environments and enhance organisational learning (Zhang et al., 2002, Landsbergen Jr and Wolken Jr, 2001).

3.2   The Digital Divide

The digital divide is defined by the "gap between individuals, households, businesses and geographic areas at different socio-economic levels with regard both to their opportunities to access information and communication technologies (ICTs) and to their use of the Internet for a wide variety of activities" (OECD, 2001).   The digital divide is consequently seen as a threat to the information society and by extension to e-government ventures (Husing and Selhofer, 2002). The development of e-government must therefore take these issues into account as fundamental components of social inclusion (Husing and Selhofer, 2002).

One key doctrine of wider public sector policy reforms is equal access and participation of citizens to better quality public services (OECD, 2001, PUMA, 2003, EU, 2002). Governments are encouraged to include issues relating to social inclusion in the process of developing citizen-centred e-government, as these issues will directly affect levels of social collaboration and participation (Bellamy and Taylor, 1994).

The European Union has set the objective of digital inclusion as an integral part of the eEurope Initiative and Action Plan and states the need for positive action to prevent social-exclusion (EC, 2000). Initiatives at minimising these factors are essential for e-government ventures to be successful because the provision of integrated, re-engineered services can only yield the expected benefits, both for citizens and government, if most citizens can access the services (Coulthard and Castleman, 2001).

3.3   eInclusion

Although information technology and the Internet has been hailed for its potential to empower individuals in the Information Society, it is clear that sufficient IT diffusion depends not only on the merits of the technology but also on social and cultural aspects (Tractinsky et al., 1998). The task of designing access channels that complements the skill level and social and cultural orientation of every citizen is highly complex on the scale covered by e-government initiatives (Tractinsky et al., 1998). Citizens who are visually impaired for example need to be able to participate on equal terms. Similarly, the abilities of older or disabled citizens must be considered, as there may be physical or mental obstacles to participation. This issue is important as the numbers of 'silver surfers' in particular is set to increase substantially in the coming years, reinforcing the need for multiple access channels (Howell, 2001).

3.4   Privacy

Privacy, security and confidentiality are natural concerns for businesses and citizens alike (Tambouris, 2001, Layne and Lee, 2001, Dridi, 2001). Many citizens may feel that their privacy is threatened due to the fact that personal data is stored centrally, increasing the detrimental effect of the 'big brother' syndrome. The degree to which the interface of the system is personalised may also deter some citizens from using the electronic medium, preferring the familiarity of traditional physical interactions (Jupp and Shine, 2001).

Moreover, Clarke (2001) has highlighted the potential of certain technologies, in particular biometric technologies, to create an environment where governments and organisations have enormous power over individuals, threatening personal entitlements

and civil liberties. Clarke (1999) further comments in relation to ESD that there is no fool proof method of ensuring an individual's identity in the transaction of a service.

3.5   *Data Protection*

Issues of data protection and the legal requirements of electronic transactions further influence the implementation of electronic services (Dridi, 2001, Carrick, 2001). International data protection reforms recommend security measures to protect sensitive information and in doing so present potential restrictions for government agencies on the usage of data in transactions and the storage of citizen data (Dearstyne, 2001). Strategic choices are required regarding how information is made available for transactions, how long it can be stored for and how that information can be used.

4   Research Methodology

An in-depth case study is presented consisting of 3 semi-structured interviews, supplemented by two questionnaire surveys. In-depth interviews were carried out involving senior management from Donegal County Council. In Ireland, local government services are delivered mainly by county councils, of which there are 29. Donegal is unique in that county management have pursued a pioneering programme of organisational change and service provision to facilitate e-government development. Interviews with the Director of Services, Divisional and Local management were carried out onsite in June 2003, each lasting from between 2 and 4 hours. Care was taken throughout the interviewing process to produce detailed reports as soon as possible to avoid the loss of data or impressions gained by the researcher (Darke et al., 1998). Records were kept of the content of all interviews. Further clarifications and updates were obtained by email and telephone contact.

Two survey-based questionnaires were also conducted in a 'Counter, Shop Front' (Clarke, 1999) in Co. Donegal: the first involved staff members of the facility and the second obtained responses from users of the centre. The researcher gathered 85 responses from a total of 110 staff members, resulting in a response rate of 77% and obtained a further 98 responses to the citizen questionnaire.

The research objectives for each questionnaire were defined as either focussing on descriptive, exploratory issues to investigate features of service delivery in the ISC or for the specific purpose of triangulation with data collected during the semi-structured interviews.

The user survey was constructed to elicit the attitudes of the users of a one-stop-shop to methods of service delivery. This was based on theoretical assumptions identified in the literature and in comparison with the attitudes put forward in the semi-structured interviews with senior management of Donegal County Council. The survey was constructed to achieve two aims: to identify success factors of the one-stop-shop model and to gather the opinion and intention of users to online service delivery, in comparison with other delivery mechanisms.

The research objective of the staff survey was to compare the attitudes put forward with those recorded in interview with senior management of Donegal County Council. The questionnaire was intended to identify potential success factors for the design of one-stop-shops. The survey also focuses on the perceptions staff have of the one-stop-shop

for delivering services and as such the responses can be compared with the attitudes of users to the same issues.

5   Case Study: eGovernment In Ireland

5.1   eGovernment Strategy

In March 2002 the Irish government committed itself to placing all appropriate services online by 2005 (Government of Ireland, 2002). In order to achieve this, the government developed a comprehensive strategy for the development of electronic services with two key objectives: a focus on citizen-centred service development and the use of the entry point concept as a technological means to provide service integration. In line with these objectives the Irish government has delegated certain tasks to progress the development of electronic services: first the concept of the entry point has been prioritised and an independent agency created for the purpose of managing its development; second, local and national agencies have been mandated to modernise their resource provision in line with citizen-centric principles; third, pilot initiatives have been progressed in selected areas for the purpose of developing various delivery channels to the entry point. In line with Clarke's (1999) model of entry points, the implementation of this strategy can be explored in more detail.

5.2   Entry Point

The Irish government identified the concept of the entry point as the central mechanism for delivering the e-government agenda. The model of the entry point was designed to provide a mechanism to coordinate government service providers and to manage the various interactions with resource providers in delivering a service. In turn the entry point provided the ability to combine and restructure those services around the needs of citizens. The entry point also supports multiple delivery channels. The model of the Public Service Broker (PSB), see figure 2 below, outlines the structure of the proposed entry point.
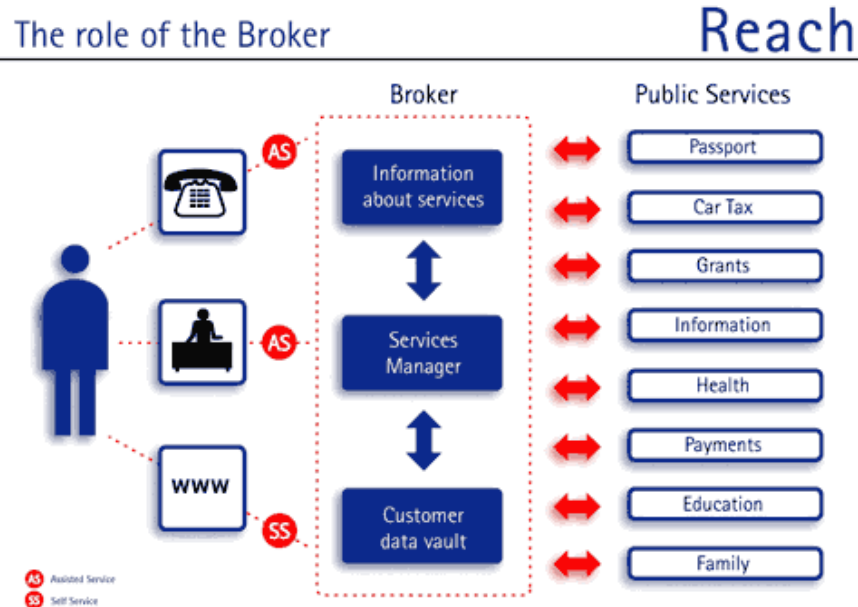
Figure 2: *The Public Service Broker*

In order to implement the PSB, the Reach agency was established. Reach is an executive body, its name reflecting the concept of government reaching out to its customers. Initially Reach was composed of 11 members, all civil servants drawn from a variety of departments, reporting to the Department of An Taoiseach, the central government department responsible for developing e-government strategy.

5.3   Resource Provision

In response to a clear mandate to modernise resource provision, local and national agencies took the initial step in 2000 of developing individual web sites, providing detailed information to citizens and businesses respectively. With a focus on customer requirements, these sites broke the long standing tradition of distributing government information along functional lines.

Also in 2000, in response to local authority requests, the Local Government Computer Supply Board (LGCSB) developed electronic forms (e-forms) for use on local authority web sites. These were essentially web versions of the traditional paper based form and enabled users to register with their local authority.

In developing the PSB, Reach identified the need for a more efficient system of managing forms and a more accessible location for delivering forms. As a result Reach, in partnership with LGCSB, progressed the development of e-forms and enabled the provision of an interim level PSB. This development was called reachservices. The key development to e-forms was the creation of an entry point, of which the key component is a form builder tool. The form builder tool enables the local authority to create their customised form that is then uploaded onto the reachservices site.

5.4   Delivery Channels

Two delivery channels have been developed to interface with the PSB: physical access through a counter, shop front and online access through the pilot reachservices site. The strategy adopted by the Irish government for developing the physical channel has been to test a pilot initiative in a selected area. Reach chose Co. Donegal to pilot the physical channel of the PSB and was supported by central government with an allocation of Euro 1.8 million to the research and development of the project. Reach believed Co. Donegal to be an appropriate test site for a physical channel as the incidence of PC ownership and Internet connectivity are not high in Co. Donegal. Furthermore, senior management in Co. Donegal predicted that there would be significant need for assisted or mediated access to the Public Services Broker, particularly for sections of the community that require regular or frequent access to public services, such as the socially excluded (DCC, 2001).

At the centre of the pilot scheme was the development of Integrated Service Centres (ISC). These centres offer integrated services to local citizens, delivered through physical channels. The ISC provides a range of core local government services e.g. housing and unemployment services and has developed an intermediary service from which services can be activated as well as the provision of detailed information and advice. In the past citizens were required to contact every agency involved in the delivery of a particular service, for example, to avail of housing services citizens were forced to contact the North Western Health Board, Donegal County Council, the Department of Social Community and Family Affairs and the Revenue Commissioners individually. The ISC however, has developed sufficiently effective collaboration between local agencies that the citizen is only required to make a single interaction with the ISC to expedite the service. The process of developing the ISC was initiated in 1999 and a total of six ISC are planned for County Donegal with 4 currently in operation.

The other delivery access channel to be developed, providing online access to services, was reachservices. This allows registered users to submit forms electronically to the relevant department. Part of this registration is an authentication process that is managed by the Department of Social and Family Affairs. The individual may then access the reachservices site using their Personal Public Service (Social Security) number and password. This provides the authority with proof of the individual's identity and enables features like intelligent form filling – a feature that allows certain fields to be populated automatically based on the information stored on each citizen. When the user submits the form it is automatically routed to the relevant authority in XML format. At present the front-end interface is fully automated while the back end system still relies on human interaction.

6   Findings

6.1   Access To eGovernment Services

One of the central themes guiding the development of e-government is to achieve citizen-centred service delivery, the development of which involves an increased role for information technology (Li, 2003, Heeks, 1999, Hood, 1991). The role for technology however, implicitly assumed through e-government implementation models e.g. Layne and Lee (2001), focuses solely on the development of web-enabled access to services. This case suggests that the role for technology in e-government should support a model for multiple channel delivery e.g. Clarke (1999), utilising the advantages of both web-

enabled efficiencies and the need for government to retain physical interaction with citizens.

The potential for accessing services online has been generally supported by citizens. The initial uptake rate for reachservices was 500-600 per month, which was viewed as successful by Reach as the launch of the web site was subdued to prevent an initial surge of activity. Those citizens in the ISC who have access to the Internet, show a strong desire to access services online: over 70% would access services such as car tax and educational services online. Furthermore, the number of homes in Ireland with access to the Internet has increased from below 20% in 2000 to 34% in 2003 (CSO, 2003), enabling these citizens to access government services online.

However, the importance of the physical delivery channel has also been highlighted through the success of the ISC. Management in Donegal noted that socially excluded citizens were in greatest need of improved citizen-centred services, but were least able to access services online and also in need of advice from government agencies for particular services. 88% of citizens using the ISC highlighted the ability to access specific information and advice on personal issues as important reasons for choosing to use the ISC. 76% of users strongly agreed with the importance of physical contact in accessing services and over 80% highlighted the presence of many government and council departments as important features of the ISC. These figures show a significant portion of users support the attitudes of senior management to the importance of physical access channels.

The ability and willingness of users to avail of government services online were also noted. The survey revealed that the highest demand for services were those relating to social welfare services and these citizens were also most likely not to have Internet access. Over 58% of users have rarely or never used the Internet for personal use. This compares with a national average of 66% of households that do not have a computer connected to the Internet and 71.5% of unemployed persons who have never used the Internet (CSO, 2003). Of these ISC users, 77% either disagreed or strongly disagreed with being comfortable providing personal information over the Internet to avail of services. These figures show, in support of opinions raised by Donegal senior management, that of the high volume services in the ISC, the users most likely in need of such services cannot or would not access them online. These figures also support privacy issues raised in the literature, highlighting not only the extent to which the unwillingness of users to use online services exists in this study, but also the specific sector of socially excluded citizens to which this problem most applies.

Furthermore, 83% of ISC users, who have rarely or never used the Internet for personal use, were unaware of the Donegal County Council web site and 100% of users were unaware of the reachservices web site. 64% of users either disagreed or strongly disagreed that services would be more convenient if they were available online, while only 16% indicated that they would find accessing services more convenient online. The main barriers highlighted by these users to using the Internet to access public services were: lack of security for personal information (57% strongly agreed), little perceived benefit in using the Internet for public services (53% strongly agreed), lack of access to Internet enabled computers (30% strongly agreed) and lack of knowledge of how to use the Internet (20% strongly agreed). Evidence from this survey shows that the complexity of designing access channels must not only compliment social and cultural aspects (Tractinsky et al., 1998), but must specifically deal with issues of data privacy, Internet access and education and e-inclusion to ensure equal access to public services. For a wide portion of citizens this means that the current optimum delivery channel is one that is physically based.

These service delivery initiatives provide evidence of the need for multiple delivery channels as the flexibility offered, by providing two modes of service provision, has been important in allowing for differences in both citizen choice and in social profile. However, although there is evidence to support the validity of pursuing a multi-channel design strategy, in this case development did not occur in a co-ordinated fashion. There has been no communication between Reach and Donegal since the inception of the ISC and as a result the potential to explore the progress made by the ISC has not been exploited in a national context.

In October 2003, a report produced by the Information Society Commission (ISC), an independent advisory body to the Irish government, reported that in addition to delivering services online, the potential of e-government to improve the quality of existing services delivered through more traditional channels should be explored in line with concerns over social inclusion. Cross-agency collaboration is also identified as a key priority in e-government development and the report highlights the importance of streamlining and re-engineering back-end processes in order to support future e-enabled service delivery.

6.2 Inter-Agency Collaboration

The development of the ISC in Donegal is evidence of an attempt by a local authority to progress organisational development in accordance with strategies to deliver fully integrated services. Donegal county council (DCC) radically altered its organisational structure to support the process of delivering services through the ISC. Senior management in DCC delegated decision-making to the area management level to foster inter-agency working relationships in the provision of services. The decentralisation of the management structure allows decision making to occur in the distributed locations of the ISC and promotes cross-functional activities between service providers.

Senior management outlined three main success factors attributed to the development of the ISC: stakeholder inclusion, inter-agency collaboration and the use of ICT. These factors are compared to the evidence gained from the staff survey.

The evidence of the ISC supports the importance of communication and inclusion of stakeholders in the process of organisational change, as political resistance to change was avoided by ensuring that staff members and management shared mutual expectations throughout the development process. In common with Myers (1994) and Klein and Hirschheim (1991), failure to achieve consensus through misconceptions held by stakeholders contributes to systems development failure. In the case of the ISC, the inclusion of stakeholders was a primary feature of the success of this approach and played an important role in negotiations between management and staff for the development of the ISC.

The attitudes of Council staff members were frequently sought by Council management and played an important role in the negotiations between management and staff in the process of developing strategies for implementing integrated services. Many of the suggestions made by staff throughout the negotiating process have been included in the design of the ISC. Some of these suggestions related to accountability, communication from management and employment roles. The process of negotiating with staff members appears to have justified the identification of stakeholder inclusion as a success factor by senior management, as certain suggestions made by staff members have been resolved in the current design of the ISC. 55% of staff members indicated that they either agreed or strongly agreed with having a more clearly defined role since the introduction of the ISC. In response to the level of communication from management regarding policy guidelines for services, local management in particular supported the changes as 60% of managers

strongly agreed. A total of 69% of staff agreed or strongly agreed with the provision of a more challenging environment in the ISC, while 70% identified a more positive working environment since the introduction of the ISC. Finally, over 50% of staff members agreed or strongly agreed with an increase in accountability for departments in the provision of services to customers.

Organisational restructuring was identified by management as critical to achieving better collaboration between agencies and to create an environment that will support the introduction of new technologies. Staff members of the ISC have responded positively to the increase in collaboration between departments since the introduction of the ISC and further believe that this has had a positive impact on the provision of service. 83% of staff either agree or strongly agree with the increase in cooperation since the introduction of the ISC and over 80% of staff members either agreed or strongly agreed that co-operation between departments in the ISC was an important aspect for departments who work in the ISC, corroborating the opinion of senior management in the County council who identified the factor of collaboration as an essential component of the ISC.

Senior management also highlighted the role of ICT to the development of better service provision. In particular, the internal intranet is rated strongly by staff with over 64% agreeing that it enabled collaboration with other departments. 75% of front-line staff either agreed or strongly agreed with the benefits of access to e-forms, reflecting the fact that this staff group would have more direct access to the customer and more experience of the benefits of online forms.

The attitudes of staff members to the ISC have also been compared to the users in relation to important reasons why the ISC has improved the quality of services for users. The main reasons are grouped in similar patterns with location (over 80% agree or strongly agree), the presence of many departments in the ISC (85% agree or strongly agree) and the ability to activate services from the information desk (85% agree or strongly agree), ranking particularly highly in both surveys.

In summary, the overall response from staff members to the change process has been positive. The implementation approach has been responsive to the potential for political resistance to change and has focused on including stakeholder opinion in the development of strategy and the process of implementation. As a result, due to the successful development of inter-agency co-operation combined with the use of ICT, service integration has been achieved and in turn, a better quality of public service.

7   Conclusions

This case provides valuable insights into how citizen centred e-government can be attained, provides indicators of the success factors that will enable further development, and highlights the central importance of developing multiple access channels and cross-agency collaboration. Evidence from the ISC shows that the most disadvantaged citizens have the lowest levels of access to the Internet, yet this group also has the highest level of interaction with the government. Thus although e-government provides the potential to gain benefits in service delivery over the Internet, in accordance with issues such as social inclusion, e-government initiatives should also be integrated with broader policy and service delivery goals that account for multiple access to services and the improvement in service quality. As such e-government should be viewed as an enabler of better public services, not an end in itself. This finding is inline with recent OECD policy guidelines which state that the role of e-government should be simply to support the achievement of better government – e-government is more about government than about "e" (OECD, 2003).

The development of the ISC also suggests that a key area to achieving such improvements in government is to foster better cross-agency linkages, which in this case have allowed for better collaboration, interoperability and customer focus. This development has taken a different approach to implementation as it has reorganised service providers first before delivering services over the Internet. This strategy has been successful because the focus of the approach has been on resolving local development issues, analysing the complex processes that make up services and providing the correct technical infrastructure. This approach has been developed in collaboration with various affected stakeholders and has enabled the identification and resolution of potential areas of conflict.

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